

REMARKS

Claims 1 and 4-10 are pending in this application; claim 1 being independent. In light of the amendments and remarks contained herein, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections.

The Official Action

In the outstanding Official Action, the Examiner rejected claims 1, 4-5, and 8 under 35 U.S.C. § 102(e) as being anticipated by *Foster et al.* (USP 6,140,215); rejected claims 6-7 under 35 U.S.C. § 103(a) as being unpatentable over *Foster et al.*; and rejected claims 1 and 4-8 under 35 U.S.C. § 102(e) as being clearly anticipated by *Yamazaki et al.* (USP 5,932,302). Applicants respectfully traverse these rejections.

Examiner Interview

Applicants wish to thank the Examiner for the interview conducted on January 8, 2003. It is respectfully submitted that the amendments and remarks contained herein conform to the discussions had during the interview.

Claim Rejections - 35 U.S.C. § 102 - *Foster et al.*

By this Amendment, Applicants have amended claim 1 to more appropriately recite the present invention.

In support of the Examiner's rejection of claim 1, the Examiner asserts that *Foster et al.* teaches applied frequencies which range from 450 KHz to 13.56 MHz and pressure ranging from 0.5 to 100 Torr in the reaction or deposition space, citing to various recitations in the *Foster et al.* reference.

While Applicants agree that *Foster et al.* teaches the range of frequency and pressure, it is respectfully submitted that the present invention as set forth in amended

claim 1 recites, *inter alia*, a plasma processing method comprising setting a plasma processing gas to pressure P(Torr) where P(Torr) satisfies the following relationship:

$$2 \times 10^{-7} (\text{Torr/Hz}) \times f(\text{Hz}) \leq P(\text{Torr}) \leq 500 (\text{Torr})$$

While the Examiner asserts that this relationship recited in claim 1 is merely a "mode of writing a range limitation," Applicants respectfully disagree. The formula recited in the claim denotes a linear relationship between the frequency and the pressure. As set forth in the specification, by setting the pressure based upon the frequency as set forth in this formula, certain benefits are realized. For example, in the specification on page 16, lines 12-23, a high rate of plasma processing may be achieved while keeping the plasma stable.

It is respectfully submitted that *Foster et al.* fails to teach this relationship as set forth in claim 1. As such, it is respectfully submitted that claim 1 is not anticipated by *Foster et al.* It is respectfully submitted that claims 4-10 are allowable for the reasons set forth above with regard to claim 1 at least based upon their dependency on claim 1.

Claim Rejections - 35 U.S.C. § 102 - *Yamazaki et al.*

With regard to the Examiner's rejection of claim 1 under 35 U.S.C. § 102(e) as being anticipated by *Yamazaki et al.*, the Examiner asserts that *Yamazaki et al.* teaches a pressure ranging from 15 Torr to 100 Torr and teaching a frequency to be applied with these pressures at 13.56 MHz.

As noted above, it is respectfully submitted that claim 1 recites, *inter alia*, a formula relating frequency with pressure. While *Yamazaki et al.* may teach frequency and pressure that satisfy the claimed relationship, it is respectfully submitted that *Yamazaki et al.* fails to teach the formula set forth in claim 1. As such, it is respectfully submitted that claim 1 is not anticipated by *Yamazaki et al.*

It is further respectfully submitted that claims 4-10 are allowable for the reasons set forth above with regard to claim 1 at least based upon their dependency on claim 1.

CONCLUSION

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Catherine M. Voisin (Reg. No. 52,327) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version With Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows:

1. (Twice Amended) A plasma processing method comprising: [for performing film formation, etching, or surface treatment on a substrate by supplying high frequency power between an electrode and a holder, by which the substrate is supported]

supporting a substrate to be opposed to [the] an electrode[,]; [to generate plasma between the electrode and the substrate on the basis of a plasma processing gas,]

setting the plasma processing gas to pressure P(Torr) where P(Torr) satisfies the following relationship

$$\underline{2 \times 10^{-7} (\text{Torr/Hz}) \times f(\text{Hz}) \leq P(\text{Torr}) \leq 500 (\text{Torr})}$$

wherein f(Hz) is a variable frequency of the high frequency power and wherein the plasma processing gas is a mixture gas of a reactant gas and an inert gas[,]; and [pressure P(Torr) of the plasma processing gas is set to satisfy the following relationship]

$$[2 \times 10^{-7} (\text{Torr/Hz}) \times f(\text{Hz}) \leq P(\text{Torr}) \leq 500 (\text{Torr})]$$

[where f(Hz) is a frequency of the high frequency power] supplying high frequency power between the electrode and a holder to generate plasma between the electrode and the substrate on the basis of a plasma processing gas.

New claims 9 and 10 have been added.